VI. Description of CSD Indicators of Sustainable Development

This chapter contains a short description of all CSD indicators. Detailed information is available in the methodology sheets contained in the accompanying CD-Rom as well as on the internet at *http://www.un.org/esa/sustdev/natlinfo/indicators/isd.htm*

A. Poverty

PROPORTION OF POPULATION LIVING BELOW NATIONAL POVERTY LINE

Sub-theme: Income poverty **Core indicator**

Brief definition: The proportion of the population with a standard of living below the poverty line as defined by the national government. National estimates are based on population-weighted subgroup estimates derived from household surveys.

Description: The indicator (also known as national poverty rate) is a standard measure of poverty, especially income poverty. It provides information on progress towards poverty alleviation, a central objective and requirement of sustainable development. The national poverty rate is one of the core measures of living standards and it draws attention exclusively towards the poor.

PROPORTION OF POPULATION BELOW $ 1 PER DAY

Sub-theme: Income poverty

Brief definition: The proportion of the population having per capita consumption of less than $1.08 a day, measured at 1993 international prices.

Description: The population below $1 a day provides a uniform measure of absolute poverty for the developing world, using data from nationally representative household surveys. Progress against absolute poverty is now a widely accepted yardstick for assessing the overall performance of developing economies.

RATIO OF SHARE IN NATIONAL INCOME OF HIGHEST TO LOWEST QUINTILE

Sub-theme: Income inequality

Brief definition: The ratio of the share in national income (or consumption) accruing to the highest 20 percent of the population to the share accruing to the lowest 20 percent.

Description: The indicator shows the extent of inequality in income distribution within a country. Inequality in outcomes such as income or consumption and inequality in opportunities hinder human development and are detrimental to long-term economic growth. Poor people generally have less voice, less income, and less access to services than wealthier people. When societies become more equitable in ways that lead to greater opportunities for all, the poor stand to benefit from a "double dividend." Empirical studies suggest that the impact of growth on poverty reduction is greater when initial income inequality is lower.

PROPORTION OF POPULATION USING AN IMPROVED SANITATION FACILITY

Sub-theme: Sanitation **Core indicator**

Brief definition: Proportion of population with access to a private sanitary facility for human excreta disposal in the dwelling or immediate vicinity. Improved sanitary facilities range from simple but protected pit latrines to flush toilets with sewerage.

Description: The provision of adequate sanitation is necessary for poverty alleviation and to protect human health and the environment. The indicator monitors progress in the accessibility of the population to sanitation facilities, a basic and essential social service. Accessibility to adequate excreta disposal facilities is fundamental to decrease the faecal risk and frequency of associated diseases. When broken down by geographic (such as rural/urban zones) or social or economic criteria, it also provides tangible evidence of inequities.

PROPORTION OF POPULATION USING AN IMPROVED WATER SOURCE

Sub-theme: Drinking water **Core indicator**

Brief definition: Proportion of population with access to an improved drinking water source in a dwelling or located within a convenient distance

from the user's dwelling. Improved drinking water sources include bottled water; rainwater; protected boreholes springs and wells; public stand-pipes and piped connections to houses.

Description: The provision of adequate sanitation is necessary for poverty alleviation and to protect human health and the environment. The indicator monitors progress in the accessibility of the population to improved water sources. Accessibility to improved water sources is fundamental to decrease the faecal risk and frequency of associated diseases. It is also a universal human development indicator. When broken down by geographic (such as rural/urban zones) or social or economic criteria, it also provides tangible evidence of inequities.

SHARE OF HOUSEHOLDS WITHOUT ELECTRICITY OR OTHER MODERN ENERGY SERVICES

Sub-theme: Access to energy **Core indicator**

Brief definition: Share of households without access to electricity, and share of households using 'traditional' non-commercial energy options, such as fuelwood, crop wastes and dung, as primary fuel for cooking and heating.

Description: The indicator monitors progress in accessibility and affordability of modern energy services including electricity. Electricity and other modern energy services are an essential component of providing basic social services. Lack of access to modern energy services contributes to poverty and deprivation and limits economic development. Furthermore, adequate, affordable and reliable energy services are necessary to guarantee sustainable economic and human development.

PERCENTAGE OF POPULATION USING SOLID FUELS FOR COOKING

Sub-theme: Access to energy

Brief definition: Percentage of population using solid fuels as source for cooking. Solid fuels include biomass fuels, such as wood, charcoal, crops or other agricultural waste, dung, shrubs and straw, and coal.

Description: The indicator covers multiple sustainable development issues. Most importantly, the use of solid fuels in households is a proxy for indoor air pollution, which is associated with increased mortality from

pneumonia and other acute lower respiratory infections among children as well as increased mortality from chronic obstructive pulmonary disease and lung cancer (where coal is used) among adults. High demand for biomass fuels to meet household energy needs can contribute to deforestation and subsequent land degradation. The indicator also measures access to modern energy services, central to poverty alleviation and sustainable development in general.

PROPORTION OF URBAN POPULATION LIVING IN SLUMS

Sub-theme: Living conditions **Core indicator**

Brief definition: The proportion of urban population lacking at least one of the following five housing conditions: Access to improved water; access to improved sanitation facilities; sufficient, not overcrowded, living area; structural quality/durability of dwellings; security of tenure.

Description: This is a key indicator measuring the adequacy of shelter. Overcrowding, inadequate housing, lack of water and sanitation are manifestations of poverty. They deprive residents from their human rights, are associated with certain categories of health risks and are often detriments to future development. An increase of this indicator is sign of deteriorating living conditions in urban areas. Disaggregating the indicator by type of housing conditions gives further information on the severity of inadequate living conditions.

B. Governance

PERCENTAGE OF POPULATION HAVING PAID BRIBES

Sub-theme: Corruption **Core indicator**

Brief definition: Percentage of population having been asked or having complied to expectation by government officials to pay a bribe for his or her services.

Description: The indicator measures prevalence of corruption among government officials through crime surveys. A decline of this indicator is a sign of progress on the corruption component of good governance. Good governance is essential for sustainable development.

NUMBER OF RECORDED INTENTIONAL HOMICIDES PER 100,000 POPULATION

Sub-theme: Crime **Core indicator**

Brief Definition: Number of intentional homicides recorded in criminal (police) statistics. Countries with sufficiently reliable crime statistics may wish to expand the indicator by including violent crimes, such as assault, rape and/or robbery.

Description: The indicator measures the development of intentional homicides over time. Intentional homicides, as well as violent crimes, have a very significant negative impact on sustainable development. The phenomenon of crime compromises human dignity, creates a climate of fear and erodes the quality of life. The indicator can also be used as a measure for the adherence to the rule of law, a component of good governance.

C. Health

UNDER-FIVE MORTALITY RATE

Sub-theme: Mortality **Core indicator**

Brief definition: Under-five mortality rate refers to the probability of dying before age 5. It is expressed as deaths per 1,000 live births.

Description: This indicator measures the risk of dying in infancy and early childhood. In high-mortality settings, a large fraction of all deaths occurs at ages under 5 years. Under-five mortality levels are influenced by the availability, accessibility and quality of health services; education, particularly of mothers; access to safe water and sanitation; poverty and nutrition, among other factors.

LIFE EXPECTANCY AT BIRTH

Sub-theme: Mortality **Core indicator**

Brief definition: The average number of years that a newborn could expect to live, if he or she were to pass through life subject to the age-specific death rates of a given period.

Description: The indicator measures how many years on average a newborn is expected to live, given current age-specific mortality risks. Life

expectancy at birth is an indicator of mortality conditions and, by proxy, of health conditions.

HEALTHY LIFE EXPECTANCY AT BIRTH

Sub-theme: Mortality

Brief definition: The average equivalent number of years of full health that a newborn could expect to live, if he or she were to pass through life subject to the age-specific death rates and ill-health rates of a given period.

Description: Healthy life expectancy (HALE) provides a summary of overall health conditions for a population, which are in turn an integral part of development. HALE captures both fatal and non-fatal health outcomes and provides a more complete picture of the impact of morbidity and mortality on populations, than life expectancy alone.

PERCENT OF POPULATION WITH ACCESS TO PRIMARY HEALTH CARE FACILITIES

Sub-theme: Health care delivery **Core indicator**

Brief definition: Proportion of population with access to primary health care facilities. Primary health care is defined as essential health care made accessible at a cost the country and community can afford, with methods that are practical, scientifically sound and socially acceptable.

Description: The indicator monitors progress in the access of the population to primary health care. Accessibility of health services, going beyond just physical access, and including economic, social and cultural accessibility and acceptability, is of fundamental significance to reflect on health system progress, equity and sustainable development.

IMMUNIZATION AGAINST INFECTIOUS CHILDHOOD DISEASES

Sub-theme: Health care delivery **Core indicator**

Brief definition: The percent of the eligible population that have been immunized according to national immunization policies. The definition includes three components: (i) the proportion of children immunized against diphtheria, tetanus, pertussis, measles, poliomyelitis, tuberculosis and hepatitis B before their first birthday; (ii) the proportion of children

immunized against yellow fever in affected countries of Africa; and (iii) the proportion of women of child-bearing age immunized against tetanus.

Description: This indicator monitors the implementation of immunization programs. Good management of immunization programmes is essential to the reduction of morbidity and mortality from major childhood infectious diseases, and is integral to the achievement of sustainable development.

CONTRACEPTIVE PREVALENCE RATE

Sub-theme: Health care delivery

Brief definition: This indicator is generally defined as the percentage of women of reproductive age (15-49 yrs) using any method of contraception at a given point in time. It is usually calculated for women married or in union of reproductive age, but sometimes for other base population, such as all women of reproductive age at risk of pregnancy.

Description: The measure indicates the extent of couples conscious efforts and capabilities to control their fertility. Contraceptive prevalence is also an indicator of access to reproductive health services, an important element of primary health care. Reproductive health programmes, which include family planning, are among the factors that promote changes in demographic behaviour and trends, which in turn affect sustainability and development. The health benefits of contraceptive use include the ability to prevent unwanted pregnancies, thereby reducing the resort to induced abortion as well as potential complications of pregnancy and the risks of maternal mortality.

NUTRITIONAL STATUS OF CHILDREN

Sub-theme: Nutritional status **Core indicator**

Brief definition: Percentage of underweight (weight-for-age below -2 standard deviation (SD) of the WHO Child Growth Standards median) among children under five years of age; percentage of stunting (height-for-age below -2 SD of the WHO Child Growth Standards median) among children under five years of age; and percentage of overweight (weight-for-height above +2 SD of the WHO Child Growth Standards median) among children under five years of age.

Description: The purpose of this indicator is to measure long term nutritional imbalance and malnutrition resulting in undernutrition (assessed by underweight and stunting) and overweight. Anthropometric measurements to assess growth and development, particularly in young children, are the most widely used indicators of nutritional status in a community.

MORBIDITY OF MAJOR DISEASES SUCH AS HIV/AIDS, MALARIA, TUBERCULOSIS

Sub-theme: Health status and risks **Core indicator**

Brief definition: Prevalence and/or incidence of major diseases such as HIV/AIDS, malaria, tuberculosis. The indicator is measured separately for relevant major diseases, typically in cases per 100,000 people.

Description: The indicator measures the morbidity caused by major diseases. The goals of sustainable development can only be achieved in the absence of a high prevalence of debilitating diseases. HIV/AIDS, malaria, tuberculosis and other diseases are major impediments to sustainable development, especially in many developing countries. The indicator also provides information on the success of measures to fight major diseases. For that purpose, especially over a longer horizon, measuring death rates of major diseases is also important.

PREVALENCE OF TOBACCO USE

Sub-theme: Health status and risks

Brief definition: The indicator is defined as the percentage of the population aged 15 years or older that daily smokes any tobacco product. It is calculated from the responses to individual or household surveys that are nationally representative.

Description: Prevalence of current daily tobacco smoking among adults is a measure useful to determine of the economic and future health burden of tobacco use, and provides a primary basis for evaluating the effectiveness of tobacco control programmes over time. Tobacco is an undisputable health threat causing 5.4 million deaths in 2005, and representing the second risk factor for mortality worldwide. Tobacco consumption is costly and contributes to poverty and associated health inequalities at the individual and national levels. Studies have shown that prevalence is higher among the poor illustrating a negative association between prevalence and household income

and/or wealth. The cost of treatment of tobacco-caused diseases is high and falls heavily on the finances of poor households and countries. Premature deaths from tobacco-related diseases also lead to productivity losses.

SUICIDE RATE

Sub-theme: Health status and risks

Brief definition: The number of deaths from suicide and intentional self-harm per 100 000 people.

Description: The indicator is an important proxy for the prevalence of mental health disorders in a country, as mental health disorders, especially depression and substance abuse, are associated with 90% of all suicides. Mental health disorders are a major impediment to the well-being of populations in developed and developing countries. People with these disorders are often subjected to social isolation, poor quality of life and increased mortality. These disorders are the cause of staggering economic and social costs.

D. Education

GROSS INTAKE RATE INTO LAST YEAR OF PRIMARY EDUCATION

Sub-theme: Education level **Core indicator**

Brief definition: Total number of new entrants in the last grade of primary education, regardless of age, expressed as a percentage of the population of the theoretical entrance age to the last grade of primary education. The indicator is also called Primary Completion Rate.

Description: The indicator measures whether or not the entire eligible school age population has access to school and whether or not they complete the full primary cycle. Universal primary education is an important goal of the international sustainable development agenda. Education is a process by which human beings and societies reach their fullest potential. It is critical for promoting sustainable development and improving the capacity of people to address environment and development issues.

NET ENROLMENT RATE IN PRIMARY EDUCATION

Sub-theme: Education level **Core indicator**

Brief definition: The indictor is the ratio of the number of children of official school age (as defined by the national education system) who are enrolled in primary school to the total population of children of official school age.

Description: The indicator shows the proportion of children of primary school age who are enrolled in primary school. Net enrolment refers only to children of official primary school age, and excludes children of other age groups enrolled in primary school age as well as children of primary school age enrolled in other levels of education. Universal primary education is an important goal of the international sustainable development agenda

ADULT SECONDARY (TERTIARY) SCHOOLING ATTAINMENT LEVEL

Sub-theme: Education level **Core indicator**

Brief definition: Adult Secondary Schooling Attainment Level is defined as the proportion of the population of working age (25-64 years) which has completed at least (upper) secondary education. Adult Tertiary Schooling Attainment Level is defined as the proportion of the population of working age (25-64 years) which has completed at least the first stage tertiary education.

Description: These indicators provide measures of the quality of the human capital stock within the adult population of approximately working age. For instance, those who have completed upper secondary education can be expected either to have an adequate set of skills relevant to the labour market or to have demonstrated the ability to acquire such skills.

LIFE LONG LEARNING

Sub-theme: Education level

Brief definition: Percentage of the population aged 25 to 64 in education or training.

Description: The indicator measures the extent to which working-age population is engaged in learning activities. Life-long learning is essential to sustainable development. As society shifts towards sustainable production and consumption patterns, workers and citizens who are willing to develop and adopt new technologies and organisation techniques as workers, as well

as new attitudes and behaviour as citizens and consumers will be needed. The scale and quality of human resources are major determinants of both the creation of new knowledge and its dissemination.

ADULT LITERACY RATES

Sub-theme: Literacy **Core indicator**

Brief definition: The proportion of the adult population aged 15 years and over that is literate.

Description: This indicator provides a measure of the stock of literate persons within the adult population who are capable of using written words in daily life and to continue to learn. It reflects the accumulated accomplishment of education in spreading literacy. Any shortfall in literacy would provide indications of efforts required in the future to extend literacy to the remaining adult illiterate population.

E. Demographics

POPULATION GROWTH RATE

Sub-theme: Population change **Core indicator**

Brief definition: The average annual rate of change of population size during a specified period. It is often reported separately for urban and rural areas.

Description: The population growth rate measures how fast the size of population is changing. If reported separately for urban and rural area, it provides a measure of urbanization. The high growth of urban populations, caused by rates of natural increase (excess of births over deaths) in urban areas, migration from rural to urban areas and the transformation of rural settlements into urban places, is of concern in many countries. In settings where the conditions for sustainable agricultural and rural development are not in place, high rates of rural population growth could negatively affect the use of land, water, air, energy and other resources.

TOTAL FERTILITY RATE

Sub-theme: Population change

Brief definition: The average number of children (live births) a cohort of women would have at the end of their reproductive period if they were sub-

ject to the age-specific fertility rates of a given period. Its calculation assumes that there is no mortality. The total fertility rate is expressed as children per woman, and can be disaggregated into various age-specific fertility rates.

Description: Fertility is one of the variables that directly affect population change. In many countries, lower fertility has improved the ability of families and governments to make a better use of scarce resources, combat poverty, protect and repair the environment, and set the conditions for sustainable development. On the other hand, countries experiencing below-replacement fertility levels (below 2.1 children per woman) could face rapid population ageing and, eventually, decreasing population size. Adolescent fertility (births to women under 20 years of age) constitutes a matter of concern for many governments, specially in regions still experiencing relatively high fertility. Early childbearing entails a much greater risk of maternal death, while the children born to young mothers tend to have higher levels of morbidity and mortality.

DEPENDENCY RATIO

Sub-theme: Population change **Core indicator**

Brief definition: The dependency ratio relates the number of children (0-14 years old) and older persons (65 years or over) to the working-age population (15-64 years old).

Description: Dependency ratios indicate the potential effects of changes in population age structures for social and economic development, in particular regarding social support needs. A high dependency ratio indicates that the economically active population and the overall economy may face a greater burden in supporting the young and/or older economically dependent populations. It is also normally disaggregated into children dependency ratio and old-age dependency ratio.

RATIO OF LOCAL RESIDENTS TO TOURISTS IN MAJOR TOURIST REGIONS AND DESTINATIONS

Sub-theme: Population change

Brief definition: The number of visitors (tourists and same day visitors) divided by the number of local residents in tourist regions and destinations. It can be reported separately for the whole year and for peak seasons or days.

Description: The ratio can indicate total and seasonal pressure on the environmental and social resources of host regions and populations. While tourism represents a key source of income and employment in most tourist receiving regions and destinations, it also exerts considerable pressure on the environmental and socio-cultural resources of host populations, especially in peak periods. Negative environmental and social impacts of tourism can be prevented and mitigated with appropriate planning, management and monitoring of tourism activities, following integrated approaches and sustainability principles.

F. Natural hazards

PERCENTAGE OF POPULATION LIVING IN HAZARD PRONE AREAS

Sub-theme: Vulnerability to natural hazards **Core indicator**

Brief definition: The percentage of national population living in areas subject to significant risk of prominent hazards: cyclones, drought, floods, earthquakes, volcanoes and landslides. The indicator may be calculated separately for each relevant prominent hazard. The risk of death in a disaster caused by natural hazards is a function of physical exposure to a hazardous event and vulnerability to the hazard. The indicator measures the risk at sub-national scale by using historical and other data on hazards and on vulnerability. The sub-national risk levels are then aggregated to arrive at national values.

Description: This indicator contributes to a better understanding of the level of vulnerability to natural hazards in a given country, thus encouraging long-term, sustainable risk reduction programs to prevent disasters. High vulnerability means higher exposure to natural catastrophes in the absence of disaster reduction measures. Disasters caused by vulnerability to natural hazards have a strong negative impact on the development process in both industrialized and developing countries.

HUMAN AND ECONOMIC LOSS DUE TO DISASTERS

Sub-theme: Disaster preparedness and response

Brief definition: The number of persons deceased, missing, and/or injured as a direct result of a disaster involving natural hazards; and the amount of economic and infrastructure losses incurred as a direct result of the natural

disaster. The indicator may be expressed as percentage of total population (for human loss) and of GDP (for economic loss).

Description: The indicator provides estimates of the human and economic impact of disasters. Disasters involving natural hazards can have devastating short and long-term impacts on the society and the economy of any country, adversely affecting progress towards sustainable development.

G. Atmosphere

CARBON DIOXIDE EMISSIONS

Sub-theme: Climate change **Core indicator**

Brief definition: Anthropogenic emissions, less removal by sinks, of carbon dioxide (CO_2). In addition to total emissions, sectoral CO_2 emissions can be considered. The typical sectors for which CO_2 emissions/removals are estimated are energy, industrial processes, agriculture, waste, and the sector of land use, land-use change and forestry (LULUCF).

Description: This indicator measures the emissions of carbon dioxide, which is known to be the most important, in terms of impact on global warming, anthropogenic greenhouse gas (GHG). A doubling of the CO_2 concentration in the atmosphere is believed to cause an increase in the global mean temperature of 1.5 to 4.5°C, which is expected to have a very negative impact on economic, social and environmental conditions in most countries of the world.

EMISSIONS OF GREENHOUSE GASES

Sub-theme: Climate change

Brief definition: Anthropogenic emissions, less removal by sinks, of the main greenhouse gases (GHGs) carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6). Emissions of CH_4, N_2O, HFCs, PFCs and SF_6 can be converted to CO_2 equivalents using the so-called global warming potentials (GWPs) provided in assessments of the Intergovernmental Panel on Climate Change.

Description: This indicator measures the emissions of the six main GHGs which have a direct impact on climate change, less the removal of the main

GHG CO_2 through sequestration as a result of land-use change and forestry activities. An increase of greenhouse gas concentration in the atmosphere contributes to global warming, which is a major global challenge to sustainable development. For countries that have committed to reduce or stabilize their GHG emissions under the Kyoto Protocol of the United Nations Framework Convention on Climate Change, the indicator also provides information on the fulfilment of this global commitment.

CONSUMPTION OF OZONE DEPLETING SUBSTANCES

Sub-theme: Ozone Layer Depletion **Core indicator**

Brief definition: This indicator shows the consumption trends for ozone depleting substances (ODSs) controlled under the Montreal Protocol on Substance that Deplete the Ozone Layer, thereby allowing inference of the amounts of ODSs being eliminated as a result of the protocol.

Description: This indicator depicts the progress towards the phase out of ODSs by the countries which have ratified the Montreal Protocol on Substances that Deplete the Ozone Layer and its Amendments. The phase-out of ODSs, and their substitution by less harmful substances or new processes, will lead to the recovery of the ozone layer, whose depletion has adverse effects on human health, animals, plants, micro-organisms, marine life, materials, biogeochemical cycles, and air quality.

AMBIENT CONCENTRATION OF AIR POLLUTANTS IN URBAN AREAS

Sub-theme: Air quality **Core indicator**

Brief definition: Ambient air pollution concentrations of ozone, particulate matter ($PM_{10,}$ and $PM_{2,5}$, if those are not available: SPM, black smoke), sulphur dioxide, nitrogen dioxide, lead. Additional air pollutants are carbon monoxide, nitrogen monoxide and volatile organic compounds including benzene (VOCs). The priority is collection of the indicator in large cities.

Description: The indicator provides a measure of the state of the environment in terms of air quality and is an indirect measure of population exposure to air pollution of health concern in urban areas. Improving air quality is a significant aspect of promoting sustainable human settlements.

H. Land

LAND USE CHANGE

Sub-theme: Land use and status

Brief definition: The indicator measures changes of the distribution of land uses within a country over time. Broad land use categories are: Arable land, permanent cropland, permanent pasture, forests and woodland, built-up areas, other. Finer classifications may be chosen, if available and appropriate.

Description: The indicator provides information on changes in the productive or protective uses of the land resource to facilitate sustainable land use planning and policy development. Such information is useful in identifying opportunities to protect land uses or promote future allocation aimed at providing the greatest sustainable benefits for people. Economically, changes in land use will, for example, result in changes in possible agricultural production and influence employment opportunities. From an environmental point of view, unsustainable land use is an important factor in land degradation, may pose a threat to ecosystems, and lead to natural habitat loss and landscape changes.

LAND DEGRADATION

Sub-theme: Land use and status

Brief definition: The share of land which due to natural processes or human activity is no longer able to sustain properly an economic function and/or the original ecological function. Degraded land includes land affected by soil erosion, deterioration of the physical, chemical and biological or economic properties of soil and/or long-term loss of natural vegetation.

Description: The indicator measures the extent of land degradation, which is an impediment to sustainable development in general, and to sustainable agriculture in particular. In many developing countries it is a major cause of poverty and further environmental damage due to overuse of national resources. The indicator can also be seen as an overall measure of the reduction in quality of land resources.

LAND AREA AFFECTED BY DESERTIFICATION

Sub-theme: Desertification

Brief definition: The proportion of land in drylands that is affected by desertification. Desertification is defined as land degradation in arid, semi-arid, and dry sub-humid areas resulting from various factors, including climatic variations and human activities.

Description: The indicator describes the extent and severity of desertification at the national level. For dryland areas, desertification is a central problem in sustainable development. While many dryland ecosystems have generally low levels of absolute productivity, maintenance of that productivity is critical to the present and future livelihood of many hundreds of millions of people. Combating desertification is, therefore, a central sustainable development goal for large areas of the world.

ARABLE AND PERMANENT CROP LAND AREA

Sub-theme: Agriculture **Core indicator**

Brief Definition: Arable and permanent crop land is the total of "arable land" and "land under permanent crops". Arable land is the land under temporary crops, temporary meadows for mowing or pasture, land under market and kitchen gardens and land temporarily fallow (for less than five years); and land under permanent crops is the land cultivated with crops that occupy the land for long periods and need not be replanted after each harvest.

Description: This indicator shows the amount of land available for agricultural production and, *inter alia*, the cropland area available for food production. In many developing countries, rising food and fibre demand and a decline in farm sizes forces small farmers to extend cultivation to new areas, which are fragile and not suitable for cultivation. Crop intensification, which has contributed significantly to agricultural growth in recent years, can ease the pressure on cultivating new lands but farm practices adopted for raising yields can also, in some situations, damage the environment. This indicator is of value to land planning decision making.

FERTILIZER USE EFFICIENCY

Sub-theme: Agriculture

Brief definition: The indicator measures the extent of fertilizer use recovery in agriculture per crop unit. Data on the quantities of fertilizers used are converted into the three basic nutrient components and aggregated. The three components are nitrogen (N), phosphorous (P_20_5), and potassium (K_20). Nutrient components of crops and their by-products are based on their standardized chemical composition.

Description: This indicator shows the potential environmental pressure from inappropriate fertilizer application. Intensive fertilizer application is linked to nutrient losses that may lead to eutrophication of water bodies, soil acidification, and potential contamination of water supply with nitrates. In many countries, intensification of agricultural production is a response to increases in food demand and in the scarcity of agricultural land. It is necessary that this intensification keeps negative impacts to the resource base and the wider environment within bounds so that the sustainability of the system is not threatened.

USE OF AGRICULTURAL PESTICIDES

Sub-theme: Agriculture

Brief definition: Use of pesticides in metric tons of active ingredients per unit of agricultural land area.

Description: This indicator measures the use of pesticides in agriculture, which is linked to the intensification of agriculture. Whereas pesticides may increase agricultural production, they pose challenges to health and environment. Pesticides tend to accumulate in the soil and in biota, and residues may reach surface and groundwater through leaching. Humans can be exposed to pesticides through food.

AREA UNDER ORGANIC FARMING

Sub-theme: Agriculture

Brief definition: Ratio of total utilized agricultural area occupied by organic farming to total utilized agricultural area. Organic farming involves holistic production management systems, for crops and livestock, emphasizing the

use of management practices in preference to the use of off-farm inputs. The indicator may be extended to cover organic forestry and aquaculture.

Description: This indicator shows the importance of organic farming. Organic farming contributes to reducing environmental loading on soil and water resources and pressure on biodiversity. The reduction of use of pesticides, herbicides and other chemicals, combined with enhanced management of natural resources, not only improves the health of ecosystems but also fosters the health of animals and people and increases income generation and communities' self-reliance.

PROPORTION OF LAND AREA COVERED BY FORESTS

Sub-theme: Forests **Core indicator**

Brief definition: The indicator measures the share of forest area in total land area. When possible the area of primary forest should also be reported on. The *forest area* is defined as "land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. The indicator may further distinguish between primary and other forests. The primary forest area is defined as "Naturally regenerating forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed".

Description: The indicator allows for monitoring changes in the area covered by forests over time. A continuing and fast decreasing forest area in a country might be an alarm signal of unsustainable practices in the forestry and agricultural sector. Forests provide many significant resources and functions including wood products and non-wood products, recreational opportunities, habitat for wildlife, conservation of biological diversity, water and soil, and play a crucial role in the global carbon cycle. They support employment and traditional uses. Primary forests are usually associated with high levels of biological diversity, particularly in tropical regions. The area of primary forest is an important indicator of the status of the forest ecosystem as a whole.

FOREST TREES DAMAGED BY DEFOLIATION

Sub-theme: Forests

Brief definition: This indicator is defined as the percentage of trees on forest and other wooded land in the defoliation classes moderate, severe and

dead. Defoliation is needle or leaf loss in the assessable crown as compared with a reference tree.

Description: The purpose of the indicator is to provide information on the state of forest defoliation. The extent of defoliation provides an indication of the health of forests. Defoliation is influenced by a combination of climatic factors (especially drought), soil conditions, atmospheric pollution and forest pathogens. The indicator, thus, provides information on the impact of policies which reduce the occurrence of such influencing factors, in particular air pollution.

AREA OF FOREST UNDER SUSTAINABLE FOREST MANAGEMENT

Sub-theme: Forests

Brief definition: This indicator will measure the forest area that is under sustainable forest management. It can be based on a variety of information, including data on forest health, the extent to which forests fulfill targets related to their environmental, economic and social functions and on forest management practices.

Description: The indicator will provide information on forest management practices. Sustainable forest management for a variety of uses is essential to achieving sustainable development. It is a critical means to eradicate poverty, to significantly halt deforestation and to halt degradation of natural resources and the loss of biodiversity.

I. Oceans, seas and coasts

PERCENTAGE OF TOTAL POPULATION LIVING IN COASTAL AREAS

Sub-theme: Coastal zone **Core indicator**

Brief definition: Percentage of total population living within a 100 kilometres from the coast and 50 meters above sea level. Other combinations of distance-to-coast and elevation may be used as definition of coastal zones. Another approach is to measure the population living in river delta areas, which are important areas at the land-ocean interface.

Description: This indicator measures the concentration of population in coastal areas, typically due to the economic benefits that accrue from access

to ocean navigation, coastal fisheries, tourism and recreation. The indicator quantifies an important driver of coastal ecosystem pressure, and it also quantifies an important component of vulnerability to sea-level rise and other coastal hazards. Among the most important pressures are habitat conversion, land cover change, pollutant loads, and introduction of invasive species. A high population concentration in the low-elevation coastal zone (defined as less than 10 meters elevation) increases a country's vulnerability to sea-level rise and other coastal hazards such as storm surges.

BATHING WATER QUALITY

Sub-theme: Coastal zone

Brief definition: The indicator describes the changes over time in the quality of designated bathing waters (inland and marine) in terms of compliance with standards for microbiological parameters (total coliforms and faecal coliforms) and physicochemical parameters (mineral oils, surface-active substances and phenols).

Description: The indicator provides important information on the environmental status of coastal waters. Violation of bathing quality standards poses health risks for the population as well economic risks to the tourism sector. The indicator also provides information on the effectiveness of environmental regulation, especially with regard to wastewater and marine pollution caused by ships.

PROPORTION OF FISH STOCKS WITHIN THEIR SAFE BIOLOGICAL LIMITS

Sub-theme: Fisheries **Core indicator**

Brief definition: Percentage of fish stocks exploited within their level of maximum biological productivity, i.e., stocks that are either "Underexploited", "Moderately exploited" or "Fully exploited" according to formal stock assessments based on a FAO procedure. Stocks that are "Overexploited", "Depleted" and "Recovering" are outside their maximum biological productivity.

Description: The indicator provides information on the state of exploitation of fishery resources at the global, regional and national levels. It measures the level of sustainable production from capture fisheries, an important element of food security. It is based on formal stock assessments,

derived from national and, for shared fish stocks, regional catch and effort statistics.

PROPORTION OF MARINE AREA PROTECTED

Sub-theme: Marine environment **Core indicator**

Brief definition: The indicator is defined as the share of national marine area (territorial water plus exclusive economic zones) that has been reserved by law or other effective means to protect part or all of the enclosed environment. The indicator may be disaggregated by management category of the protected areas. It could be calculated separately for different marine ecological regions, if appropriate classification systems are available.

Description: The indicator represents the extent to which marine areas important for conserving biodiversity, cultural heritage, scientific research (including baseline monitoring), recreation, natural resource maintenance, and other values, are protected from incompatible uses. Protected marine areas are essential for maintaining marine ecosystem diversity, in conjunction with management of human impacts on the environment.

MARINE TROPHIC INDEX

Sub-theme: Marine environment

Brief definition: The marine trophic index measures the change in mean trophic level of fisheries landings by region and globally. Trophic level is defined as the position of an organism in the food chain, and ranges from a value of 1 for primary producers up to a level of 5 for marine mammals and humans.

Description: In addition to being an indicator of the sustainability of fisheries, the marine trophic index provides a measure of ecosystem integrity. Declining trophic levels result in shortened food chains, leaving ecosystems less able to cope with natural or human-induced change. The long term sustainability of fisheries is, in turn, directly linked to human livelihoods and well-being. Excessive fishing is the most widespread and dominant human impact on ocean ecosystems and is a major impact on marine biodiversity. The lowered biomasses and fragmented habitats resulting from the impacts of fishing are predicted to lead to local extinctions especially among large, long-lived, slow growing species.

AREA OF CORAL REEF ECOSYSTEMS AND PERCENTAGE LIVE COVER

Sub-theme: Marine environment

Brief definition: The indicator measures trends in the extant area of coral reefs (a 'key ecosystem' for many countries), and the percentage live cover of those reefs. Key ecosystems are those ecosystems for which it is most important to measure changes in extent, or those ecosystems for which it is possible to measure changes in extent.

Description: The indicator illustrates the effectiveness of national measures designed to conserve marine biological diversity and ensure its use is sustainable. In many countries, coral reefs contain rare or locally endemic or threatened species, are of particularly high species richness, represent rare or unusual habitat, are severely reduced in area relative to their potential original extent, are under a high degree of threat, and/or are of high actual or potential economic importance.

J. Freshwater

PROPORTION OF TOTAL WATER RESOURCES USED

Sub-theme: Water quantity **Core indicator**

Brief definition: Total annual volume of groundwater and surface water withdrawn from its sources for human use (in the agricultural, domestic and industrial sectors), expressed as a percentage of the total volume of water available annually through the hydrological cycle (total renewable water resources). The terms water resources and water use are understood as freshwater resources and freshwater use.

Description: The indicator shows the degree to which total renewable water resources are being exploited to meet the country's water demands and is thus a measure of water scarcity. Scarce water could have negative effects on sustainability constraining economic and regional development, and leading to loss of biodiversity. It is an important measure of a country's vulnerability to water shortages.

WATER USE INTENSITY BY ECONOMIC ACTIVITY

Sub-theme: Water quantity **Core indicator**

Brief definition: The indicator is defined as cubic metres of water used per unit of value added (in US $) by economic activity. Water used by an economic activity consists of the sum of (i) water directly abstracted from the environment either permanently or temporarily for own use and (ii) water received from other industries including reused water. Value added (gross) by economic activity is defined as in the National Accounts as the value of output less the value of intermediate consumption.

Description: This indicator measures the intensity of water use in terms of volumes of water per unit of value added. It is an indicator of pressure of the economy on the water resources. Over time, it shows whether a country has decoupled decouple water use from economic growth. The indicator also provides information on progress in implementation of integrated water resources management plans.

PRESENCE OF FAECAL COLIFORMS IN FRESHWATER

Sub-theme: Water qualitity **Core indicator**

Brief definition: The proportion of freshwater resources destined for potable supply containing concentrations of faecal coliforms which exceed the levels recommended in the World Health Organization (WHO) Guidelines for Drinking-water Quality.

Description: The indicator assesses the microbial quality of water available to communities for basic needs. It identifies communities where contamination of water with human and animal excreta at source or in the supply poses a threat to health. Diarrhoeal diseases, largely the consequence of faecal contamination of drinking-water supplies, are the major cause for morbidity and mortality in many developing countries, especially among children. Frequent diarrhoeal episodes, even without fatal consequences, disrupt children's development and education, which, in the longer term, can have serious consequences for sustainable development.

BIOLOGICAL OXYGEN DEMAND (BOD) IN WATER BODIES

Sub-theme: Water quality

Brief definition: BOD measures the amount of oxygen required or consumed for the microbiological decomposition (oxidation) of organic material in water.

Description: The purpose of this indicator is to assess the quality of water available to consumers in localities or communities for basic and commercial needs. It is also one of a group of indicators of ecosystem health. The presence of high BOD may indicate faecal contamination or increases in particulate and dissolved organic carbon from non-human and animal sources that can restrict water use and development, necessitate expensive treatment and impair ecosystem health. Human ill health due to water quality problems can reduce work capability and affect children's growth and education. High levels of oxygen consumption pose a threat to a variety of aquatic organisms, including fish.

WASTEWATER TREATMENT

Sub-theme: Water quality

Brief definition: Proportion of wastewater that is treated, in order to reduce pollutants before being discharged to the environment, by level of treatment (primary, secondary or tertiary).

Description: This indicator assesses the potential level of pollution from domestic and industrial/commercial point sources entering the aquatic environment, and monitors progress towards reducing this potential within the framework of integrated water resources management. It helps to identify communities where wastewater treatment action is required to protect the ecosystem. Untreated or insufficiently treated wastewater can result in increased nutrient levels, high levels of organic matter and hazardous substances, posing threats to aquatic ecosystems and human health.

K. Biodiversity

PROPORTION OF TERRESTRIAL AREA PROTECTED, TOTAL AND BY ECOLOGICAL REGION

Sub-theme: Ecosystem **Core indicator**

Brief definition: The indicator is defined as the share of terrestrial area that has been reserved by law or other effective means to protect part or all of the enclosed environment. It can be calculated separately for different terrestrial ecological regions. The indicator may also be disaggregated by management category of the protected areas.

Description: The indicator represents the extent to which areas important for conserving biodiversity, cultural heritage, scientific research (including baseline monitoring), recreation, natural resource maintenance, and other values, are protected from incompatible uses. It shows how much of each major ecosystem is dedicated to maintaining its diversity and integrity. Protected areas are essential for maintaining ecosystem diversity in countries and ecological regions, in conjunction with management of human impacts on the environment.

MANAGENT EFFECTIVENESS OF PROTECTED AREAS

Sub-theme: Ecosystem

Brief definition: This indicator will measure the effectiveness with which protected areas are being managed based on information about the context, planning and design, resource inputs, management processes, delivery of goods and services, and conservation outcomes of protected areas.

Description: Management effectiveness of protected areas is an important indicator of how well protected areas are conserving biodiversity. This is critical as most nations use protected areas as a cornerstone of biodiversity conservation. However, to determine whether this is a successful strategy it is necessary to know not only about the area and systems they cover, but also whether these are effectively managed.

AREA OF SELECTED KEY ECOSYSTEMS

Sub-theme: Ecosystem

Brief definition: This indicator measures the extant area of identified key ecosystems. Ecosystem refers to the plants, animals, micro-organisms and physical environment of any given place, and the complex relationships linking them into a functional system. Key ecosystems can be defined as either those ecosystems for which it is most important to measure changes in extent, or those ecosystems for which it is possible for measure changes in extent.

Description: The indicator assesses the relative effectiveness of measures for conserving biodiversity at ecosystem level. It is a tool to estimate the need for specific conservation measures to maintain the biological diversity in a country or region. Key ecosystem require attention and specific policy measures as they contain rare or locally endemic or threatened species, are of particularly high species richness, represent rare or unusual habitat, are severely reduced in area relative to their potential original extent, are under a high degree of threat, and/or are of high actual or potential economic importance.

FRAGMENTATION OF HABITAT

Sub-theme: Ecosystem

Brief definition: This indicator measures the fragmentation of identified key habitats. For forests and other terrestrial habitat types the patch size distribution of habitats may be derived from vegetation information systems. For river fragmentation, defined as the interruption of a river's natural flow by dams, inter-basin transfers or water withdrawal, fragmentation can be assessed based on number, placement and amount of water stored behind dams.

Description: The fragmentation of habitats caused by human activities has significant, largely negative implications for their native biodiversity, through the effects of area reduction, edge exposure and isolation, as well as through interruption of ecosystem processes and associated ecosystem degradation. The indicator has the potential to illustrate the effectiveness of national measures designed to conserve biological diversity.

CHANGE IN THREAT STATUS OF SPECIES

Sub-theme: Species **Core indicator**

Brief definition: This indicator is an index based on the number of species in each category of the IUCN Red List (Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, Extinct in the Wild, Extinct), and the number of species changing categories between assessments as a result of genuine improvement or deterioration in status. The indicator is an adaptation of the IUCN Red List Index, the best known and most accepted methodology for assessing trends in the status of threatened species at a global level.

Description: The indicator allows monitoring the extinction risk of species over time. Extinct and endangered species constitute a major loss of biodiversity, which plays a critical role in overall sustainable development. The indicator also illustrates the effectiveness of local, national, regional and global measures to protect endangered species.

ABUNDANCE OF KEY SPECIES

Sub-theme: Species

Brief definition: This indicator uses estimates of population trends in selected species to represent changes in biodiversity, and the relative effectiveness of measures to maintain it. The indicator can be applied to individual species groups (e.g. birds, butterflies), or can be aggregated to incorporate a number of taxa (e.g. in a fashion similar to the Living Planet Index), according to data availability and indicator applicability.

Description: The indicator allows monitoring the abundance of species over time. The indicator illustrates the effectiveness of national measures designed to limit the loss in biodiversity.

ABUNDANCE OF INVASIVE ALIEN SPECIES

Sub-theme: Species

Brief definition: The indicator measures the number of invasive alien species in a given country or region. An invasive alien species is a species introduced outside its normal distribution whose establishment and spread modifies ecosystems, habitats, or species.

Description: The indicator measures an important threat to biodiversity. Invasive alien species (IAS) may threaten native species as direct predators or competitors, as vectors of disease, by modifying the habitat, or altering native species dynamics. IAS have been a major cause of extinctions, especially on islands and in freshwater habitats. Species introductions caused by humans may be intentional (e.g. species released for hunting or biological control), but more commonly are unintentional (e.g. introduced with traded goods such as lumber, in the ballast water of ships, or for the pet trade).

L. Economic development

GROSS DOMESTIC PRODUCT PER CAPITA

Sub-theme: Macroeconomic performance **Core indicator**

Brief definition: Levels of gross domestic product (GDP) per capita are obtained by dividing annual or period GDP at current market prices by population. A variation of the indicator could be the growth of real GDP per capita which is derived by computing the annual or period growth rate of GDP in constant basic producers' or purchasers' prices divided by corresponding population. GDP is the sum of value-added of all production units including all taxes and subsidies on products which are not included in the valuation of output.

Description: The indicator is a basic economic growth indicator and measures the level and extent of total economic output. It reflects changes in total production of goods and services. It is a powerful summary indicator of economic development, even though it does not account for social and environmental cost of production and consumption.

INVESTMENT SHARE IN GROSS DOMESTIC PRODUCT

Sub-theme: Macroeconomic performance **Core indicator**

Brief definition: This indicator refers to the share of investment in total production. It is obtained by calculating gross capital formation as percentage of gross domestic product. Gross capital formation (investment) is defined as the total value of gross fixed capital formation plus changes in inventories and acquisitions less disposal of valuables. Gross fixed capital formation is the total value of produced assets used in the production process for more than one year.

Description: The investment ratio gives an indication of the relative importance of investment as opposed to, for example, consumption. Acquisitions of capital goods provide important information on future economic performance of a society by widening and deepening the capital stock. The indicator measures, thus, an important element of the sustainable development process, especially in developing countries with low amounts productive capital.

GROSS SAVINGS

Sub-theme: Macroeconomic performance

Brief definition: The indicator is defined in national accounts as gross disposable income (i.e. gross national income plus the balance of current transfers with the rest of the world). If available, the alternative net savings, i.e. gross savings less capital depreciation, may provide superior information. Both gross and net savings may be expressed as rates, i.e. as gross (net) savings divided by gross (net) disposable income.

Description: The indicator measures the part of income available for investment or, possibly, capital transfers to the rest of the world. It provides important information on domestic means of implementation for sustainable development. If calculated as net savings, it is an important indicator for future net wealth.

ADJUSTED NET SAVINGS AS PERCENTAGE OF GNI

Sub-theme: Macroeconomic performance

Brief definition: Adjusted net savings is defined as net savings (i.e. gross national income less capital depreciation plus the balance of current transfers with the rest of the world), plus expenditures for education, less depletion of a variety of natural resources (oil, minerals, forests) and less pollution damage (damage from urban air pollution and carbon dioxide emissions). The indicator is then computed by dividing adjusted net savings by gross national income.

Description: The indicator modifies traditional net savings in order to derive an aggregate savings concept more commensurate to sustainable development. A negative adjusted net savings rate can be interpreted as a reduction in total wealth of the economy, thus implying unsustainability. Education expenditures are added as they can be seen as investments in human capital.

Depletion of natural resource is deducted to reflect the decline in asset values associated with their extraction and harvest. Pollution damages are deducted as they reduce human and real capital.

INFLATION RATE

Sub-theme: Macroeconomic performance

Brief definition: The indicator is defined as the cost of living as measured by the annual percentage increase of the consumer price index. Consumer price indices are based on a representative basket of goods and services purchased by consumers in an economy. Composition and relative weights of the basket are reviewed periodically.

Description: The indicator measures inflation, which if too high hampers economic growth. High and unanticipated inflation increases uncertainty and leads to inter-and intra-temporal misallocation of resources as long as prices are not fully flexible. Inflation, especially if unanticipated, has often unwanted distributional effects, as it reduces real income of fixed income earners and shifts wealth away from creditors to debtors. Very high and accelerating inflation rates may be caused by excessive financing of public debts through seignorage and can be sign of unsustainable public finances.

DEBT TO GROSS NATIONAL INCOME RATIO

Sub-theme: Sustainable public finance **Core indicator**

Brief definition: The indicator can be defined as the total amount of outstanding debt issued by the general government divided by gross national income. Total debt consists of external debt (debt held by non-residents) and internal debt (held by residents). For countries where external debt is a major concern, the indicator can alternatively or additionally be defined as total external debt (private and public) divided by GNI.

Description: With regard to public debt, the indicator is a standard measure of public finance. Debt constitutes a burden for future generations as it reduces the amount available for their consumption and investments. High and increasing debt ratios can be seen as an indication of unsustainable public finances. With regard to external debt, this is one of the indicators that measures the burden of servicing the external debt of a country in relation to its total income (GNI). While external borrowing is a method of supplement-

ing savings and financing the investment gap in a country, an unsustainable external debt burden will choke development.

EMPLOYMENT-TO-POPULATION RATIO

Sub-theme: Employment **Core indicator**

Brief definition: The employment-to-population ratio is defined as the proportion of a country's working-age population that is employed. It is typically disaggregated by sex and by age group.

Description: The employment-to-population ratio provides information on the ability of an economy to create employment. Employment, as opposed to unemployment, is viewed as the desired portion of the economically active population (labour force). Employment-to-population ratios are of particular interest when broken down by sex, as they can provide information on gender differences in labour market activity in a given country. For policy purposes, employment-to-population ratios of youth and old are particular relevant.

VULNERABLE EMPLOYMENT

Sub-theme: Employment

Brief definition: The indicator is defined as the share of own-account workers and contributing family members in total employed people. The indicator is based on the broader indicator 'status in employment' which distinguishes between three categories of the total employed. These are: age and salaried workers (also known as employees); self-employed workers (employers, own-account workers and members of producers' cooperatives); contributing family workers (also known as unpaid family workers). The indicator may be broken down by sex.

Description: This indicator provides information how many persons are vulnerable to economic risk because of weak institutional employment arrangements. Own-account workers and contributing family members are regarded as especially vulnerable as they have by definition no formal work arrangements and are therefore more likely to have a low degree of job security and to lack access to social security. The indicator provides information on the informalization of labor markets, which may be associated with increasing and persistent poverty. High values of the indicator may also indicate a large agricultural sector in terms of employment, often associated with low labour productivity and economic growth rates.

LABOUR PRODUCTIVITY AND UNIT LABOUR COST

Sub-theme: Employment **Core indicator**

Brief definition: Labour productivity is defined as output (in constant prices) per unit of labour. The indicator can be reported for the total economy as well as for different sectors. Both hours worked and number of persons employed can be used as unit of labour. Unit labour cost is defined as labour compensation per unit of gross value added produced. Total labour compensation includes gross wages and salaries of employees and other costs of labour that are paid by employers, including employers' contributions to social security and pension schemes.

Description: Positive changes in labour productivity measure the part of economic growth due to more effective work by those who are employed. Driving forces behind labour productivity include the accumulation of machinery and equipment, improvements in organization as well as physical and institutional infrastructures, improved health and skills of workers ("human capital") and the generation of new technologies. Unit labor cost represents a direct link between productivity and the cost of labour used in generating output. A rise in a country's unit labour cost represents an increased reward for labour's contribution to output. However, a rise in labour cost that is higher than the rise in labour productivity, especially in tradable goods producing sectors, may indicate a decrease in international competitiveness, if other costs are not adjusted in compensation.

SHARE OF WOMEN IN WAGE EMPLOYMENT IN THE NON-AGRICULTURAL SECTOR

Sub-theme: Employment **Core indicator**

Brief definition: The indicator is the share of female workers in wage employment in the non-agricultural sector expressed as a percentage of total wage employment in that same sector. The *non-agricultural sector* includes industry and services.

Description: The indicator shows the extent to which women have access to paid employment, which will affect their integration into the monetary economy. It also indicates the degree to which labour markets are open to women in industry and services sectors which affects not only equal employment opportunities for women but also economic efficiency

through flexibility of the labour market and the economy's capacity to adapt to changes over time. Promoting gender equality and the empowerment of women thus eliminating all forms of gender-based discrimination in labour markets is essential to defeating poverty and fostering sustainable development.

NUMBER OF INTERNET USERS PER POPULATION

Sub-theme: Information and communication technologies **Core indicator**

Brief definition: The indicator is computed by first dividing the number of Internet users by total population, and then multiplying by 100. Internet users are those who use the Internet from any location. The Internet is defined as a world-wide public computer network that provides access to a number of communication services including the World Wide Web and carries email, news, entertainment and data files. Internet access may be via a computer, Internet-enabled mobile phone, digital TV, games machine etc. Location of use can refer to any location, including work.

Description: The number of Internet users is a measure of Internet access and use. As an information distribution system, the Internet and its usage provide opportunities for bringing education and information within the reach of all. It can significantly shorten time lags as well as open up a new range of information resources. It also provides significant, new economic opportunities as well as possibilities for more environment-friendly options for the marketplace.

FIXED TELEPHONE LINES PER 100 POPULATION

Sub-theme: Information and communication technologies

Brief definition: The indicator is derived by dividing the number of fixed telephone lines by total population and multiplying by 100.

Description: This indicator is one of the broadest and most common measurements of the degree of telecommunication development in a country. Telecommunication is critical to support sustainable development and is closely linked to social, economic, and institutional development. It provides those in rural and remote areas with closer contact to the outside world. It is also a critical factor for many economic activities and improves exchange of information among citizens. Modern communications are considered to be relatively benign to the environment, as they are potential substitutes for

transport and induce relatively low levels of environmental pollution. The indicator is also used as a general infrastructure indicator.

MOBILE CELLULAR TELEPHONE SUBSCRIBERS PER 100 POPULATION

Sub-theme: Information and communication technologies

Brief definition: The indicator is derived by dividing the number of mobile cellular subscribers by total population and multiplying by 100.

Description: This indicator is one of the broadest and most common measurements of the degree of telecommunication development in a country. Telecommunication is critical to support sustainable development and is closely linked to social, economic, and institutional development. In many developing countries, mobile telephony has overtaken fixed telephony in its importance as means of communication.

GROSS DOMESTIC EXPENDITURE ON RESEARCH AND DEVELOPMENT AS A PERCENT OF GROSS DOMESTIC PRODUCT

Sub-theme: Research and development

Brief definition: Gross domestic expenditure on scientific research and experimental development (R&D) expressed as a percentage of Gross Domestic Product (GDP). Gross domestic expenditure on R&D (GERD) activities are defined as the total intramural expenditure on research and development performed on the national territory during a given period. This includes both current costs and capital expenditures.

Description: This ratio provides an indication of the level of financial resources devoted to R&D in terms of their share of the GDP. R&D is essential for expanding the knowledge basis and developing new and improved products in the economy. It is a critical component of future economic growth. Moreover, R&D on issues relevant for sustainable development increases the scientific basis for informed decision-making in this area.

TOURISM CONTRIBUTION TO GDP

Sub-theme: Tourism **Core indicator**

Brief definition: The indicator is defined as the sum of the value added (at basic prices) generated by all industries in response to internal tourism

consumption and the amount of net taxes on products and imports included within the value of this expenditure. It is based on tourism satellite account (TSA), a satellite account to standard national accounts that serves as the international standard on tourism statistics.

Description: GDP generated by visitor consumption is the most comprehensive aggregate illustrating the economic relevance of tourism. There is increasing consensus on the importance of tourism as a strategic sector in the national economy insofar as it provides an essential contribution to the economic well-being of the resident population, contributes to the economic objectives of governments and shows its possible role as a relevant player in moving towards a more innovative economy.

M. Global economic partnership

CURRENT ACCOUNT DEFICIT AS PERCENTAGE OF GDP

Sub-theme: Trade **Core indicator**

Brief definition: The indicator is the balance of the current account divided by gross domestic product. The current account is part of the balance of payments and contains financial transactions of economic value between residents and non-residents of an economy. In the 5th edition of the balance of payment manual, the current account components are the balance of trade in goods and services, balance of income (compensation of employees working abroad and income from foreign investments) and current transfers (workers remittances and government transfers).

Description: Current account balance is part of the measure of an economy's savings. Along with net capital transfers and acquisition/disposal of non-produced, non-financial assets, the current account balance represents the net foreign investment or net lending/borrowing position of a country vis-à-vis the rest of the world. Persistent current account deficits or surpluses indicate a macroeconomic instability that is not conducive to sustained economic growth and, therefore, to sustained means of implementation of sustainable development goals. A current account deficit has to be financed through an increase in financial and non-financial liabilities vis-à-vis the rest of the world or a decrease in reserve assets. Repayment of these liabilities decreases the resources future generations have available for consumption and investment.

SHARE OF IMPORTS FROM DEVELOPING COUNTRIES AND LDCS

Sub-theme: Trade

Brief definition: The indicator is defined as the share of merchandise imports from least-developed countries (LDCs) and from other developing countries in total imports into the reporting countries in a given year.

Description: Trade can play a major role in achieving sustainable development. Exports from developing countries and from LDCs constitute a major source of external financing for sustainable development of those countries. For developed country importers, the indicator is one measure of the relative importance of North-South trade, whereas for developing country importers it is a measure of South-South trade. The indicator also provides information on the implementation of international commitments to increase the trade opportunities of developing countries.

AVERAGE TARIFF BARRIERS IMPOSED ON EXPORTS FROM DEVELOPING COUNTRIES AND LDCS

Sub-theme: Trade

Brief definition: The indicator can be defined as the simple average tariff imposed by country on exports from least-developed countries (LDCs) and from other developing countries to the country. The indicator can be disaggregated by product groups. The simple average tariff is the unweighted average of the effectively applied rates at the most detailed tariff line level. Trade-weighted averages may also be used to compute this indicator.

Description: Trade can play a major role in achieving sustainable development. Tariff barriers imposed on exports from developing countries and LDCs may hinder the sustainable development in those countries. Especially if compared with tariffs imposed on exports from developed countries, the indicator provides information on whether the tariff structure of a country is commensurate with fair trade principles. As the basket of exported goods for many developing countries and especially LDCs is relatively small, the indicator may be further broken down into product groups.

NET OFFICIAL DEVELOPMENT ASSISTANCE GIVEN OR RECEIVED AS PERCENTAGE OF GROSS NATIONAL INCOME

Sub-theme: External financing **Core indicator**

Brief definition: This indicator is defined as the total ODA given or received as a share of GNI of the source or recipient country, respectively, net of repayment of principal. When ODA flows by donor countries are measured, ODA comprises bilateral disbursements of concessional funds to developing countries and multilateral institutions. When ODA receipts by developing countries are measured, ODA comprises disbursement of concessional finance from both bilateral and multilateral sources. ODA consists of grants and concessional loans.

Description: The indicator is a measure of the size of flows that are both concessional, and aimed mainly at promoting development and welfare of developing countries. ODA remains an important source of external means of implementation for sustainable development in many developing countries. For donor countries, the indicator provides information on the adherence to the internationally agreed target of ODA to be at least 0.7 % of GNI. For developing countries, the indicator provides information on the contribution of foreign countries to sustainable development as well as on their dependency on foreign aid.

FOREIGN DIRECT INVESTMENT (FDI) NET INFLOWS AND NET OUTFLOWS AS PERCENTAGE OF GDP

Sub-theme: External financing

Brief definition: This indicator is defined as the share of foreign direct investment (FDI) net inflows and of FDI net outflows in GDP. FDI is investment made to acquire a lasting interest in or effective control over an enterprise operating outside of the economy of the investor. *FDI net inflows* and net outflows include reinvested earnings and intra-company loans, and are net of repatriation of capital and repayment of loans.

Description: The indicator shows the provision of external financing resources in the form of direct investments at home from foreign investors and abroad from domestic investors. For many developing countries, FDI inflows are a major and relatively stable source of external financing and thereby provide important means of implementation of sustainable develop-

ment goals. In many cases, FDI also contributes to the transfer of technology and management skills. Conversely, FDI outflows have the potential to improve sustainable development in receiving countries. Sustained increases in FDI inflows are often a sign of an improved general investment climate.

REMITTANCES AS PERCENTAGE OF GNI

Sub-theme: External financing

Brief definition: The indicator is defined as total current private transfers received by residents in a country plus compensation of employees earned by nonresident workers and migrants' transfers divided by Gross National Income (GNI).

Description: This indicator shows the extent of financial benefit for a country from temporary and permanent movements of its residents who are able to work abroad. For many countries, remittances are a major and stable source of external financing and thereby provide important means of implementation of sustainable development goals. As a result of increased globalization the importance of remittances has been rapidly increasing in the last decade.

N. Consumption and production patterns

MATERIAL INTENSITY OF THE ECONOMY

Sub-theme: Material consumption **Core indicator**

Brief definition: The indicator is defined as the ratio of Domestic Material Consumption (DMC) to Gross Domestic Product (GDP) at constant prices. DMC is defined as the total amount of materials (measured by weight) directly used in the economy (used domestic extraction plus imports), minus the materials that are exported.

Description: The indicator provides a basis for policies to decouple the growth of the economy from the use of natural resources in order to reduce environment degradation resulting from primary production, material processing, manufacturing and waste disposal. Reducing the material intensity of production and consumption of goods and services is essential to environmental protection and resource conservation. Reductions in intensity of

material use can be achieved by more efficient use of natural resources in production and consumption, by recycling used and waste material, and by shifts in consumption patterns to less material intensive goods and services.

DOMESTIC MATERIAL CONSUMPTION

Sub-theme: Material consumption

Brief Definition: Domestic Material Consumption (DMC) is defined as the weight of the total amount of materials directly used in the economy (used domestic extraction plus imports), minus the materials that are exported. Materials may be broken down by type of material (minerals, biomass, fossil fuels).

Description: DMC is a useful indicator, as it provides an assessment of the absolute level of use of resources. Primary production of raw materials, processing of the materials into products, and ultimate disposal of the waste material has major environmental impacts. The indicator provides a basis for policies to increase the efficient use of raw materials in order to conserve natural resources and reduce environment degradation resulting from primary extraction, material processing, manufacturing and waste disposal.

ANNUAL ENERGY CONSUMPTION, TOTAL AND BY MAIN USER CATEGORY

Sub-theme: Energy **Core indicator**

Brief definition: The indicator is defined as the total energy consumption (total primary energy supply or total final consumption) in the economy (in tonnes of oil equivalents). It can be broken down by main user category.

Description: This indicator measures the level of energy use and reflects the energy-use patterns in the economy overall and in different sectors. Energy is a key factor in economic development and in providing vital services that improve quality of life. Although energy is a key requirement for economic progress, its production, use and by-products have resulted in major pressures on the environment, both by depleting resources and by creating pollution.

SHARE OF RENEWABLE ENERGY SOURCES IN TOTAL ENERGY USE

Sub-theme: Energy

Brief definition: The share of renewable sources in total primary energy supply or total energy consumption. Renewable energy sources are divided into non-combustible (geothermal, hydro, solar, wind, tide and wave) and combustible renewables and waste (biomass, animal products, municipal waste and industrial waste). Non-renewables are fossil fuels (coal, crude oil, petroleum products, gas) and nuclear.

Description: The promotion of energy, and in particular of electricity from renewable sources of energy, is a high priority of sustainable development for several reasons. Energy from renewables can increase energy security and lead to diversification of energy supply. It reduces environmental degradation caused by non-renewable energy sources, contributes to the mitigation of climate change and reduces the depletion of natural resources.

INTENSITY OF ENERGY USE, TOTAL AND BY ECONOMIC ACTIVITY

Sub-theme: Energy

Brief definition: The indicator is defined as energy use (of the economy in total and of the main sectors) divided by gross domestic product (or value added in case of a sector).

Description: Declining trends in overall energy use relative to GDP (or value added) indicate that the economy is able to improve its energy efficiency and, hence, to decouple economic growth from energy consumption. Improving energy efficiency has beneficial effects on energy security and reduces pressures from economic activities on the environment.

GENERATION OF HAZARDOUS WASTES

Sub-theme: Waste generation and management **Core indicator**

Brief definition: The total amount of hazardous wastes generated per year through industrial or other waste generating activities, according to the definition of hazardous waste as referred to in the Basel Convention and other related conventions.

Description: The indicator provides a measure of the extent and type of industrialization in a country and the nature of industrial activities including

technologies and processes generating hazardous wastes. The generation of hazardous wastes has a direct impact on health and the environment. Normally, long-term exposure is required before harmful effects are seen. Reduced generation of hazardous wastes may indicate reduced industrial activities in a country, introduction of cleaner production in the industrial processes, changing patterns in consumers' habits, or changes in national hazardous waste legislation.

GENERATION OF WASTE

Sub-theme: Waste generation and management

Brief definition: The amount of all waste, both hazardous and non-hazardous, generated by selected main groups of industries or sectors of the economy, expressed per capita and per unit of value added (in US $) by economic activity (at constant prices).

Description: The main purpose is to show the trend in the generation of waste produced by different human activities. Waste represents a considerable loss of resources both in the form of materials and energy. The treatment and disposal of the generated waste may cause environmental pollution and expose humans to harmful substances and bacteria, and therefore impact on human health. Waste generated per unit of value-added shows if there is decoupling of waste generation from economic growth.

WASTE TREATMENT AND DISPOSAL

Sub-theme: Waste generation and management

Brief definition: Percentage of waste which is recycled; composted; incinerated; and landfilled on a controlled site.

Description: The indicator measures the proportion of waste generated which is recycled, composted, incinerated, or landfilled on a controlled site. It gives an indication of the environmental impact of waste management in the country. The proper treatment and disposal of waste is important from an environmental and social viewpoint but can be an economic burden on industries, municipalities and households. The amount of waste recycled and composted reduces the demand for raw materials, leading to a reduction in resource extraction. There may also be a benefit of increased income generation for the urban poor through recycling schemes.

MANAGEMENT OF RADIOACTIVE WASTE

Sub-theme: Waste generation and management

Brief definition: Progress in the management of radioactive waste is measured against key milestones related to both the processing of waste into forms suitable for either safe storage or for placement into a designated endpoint (the "form factor") and to the placement of waste into an endpoint facility ("endpoint factor"). Radioactive waste from various sources, such as nuclear power generation and other nuclear fuel cycle related activities, radioisotope production and use for applications in medicine, agriculture, industry and research, is considered.

Description: The purpose of the indicator is to represent the progress in managing the various radioactive wastes that arise from the nuclear fuel cycle and/or from nuclear applications. It provides a measure of both the current status of radioactive waste management at any time and the progress made over time towards the overall sustainability of radioactive waste management. Radioactive waste, if not properly managed, can have a direct impact on health and the environment through exposure to ionizing radiation.

MODAL SPLIT OF PASSENGER TRANSPORT

Sub-theme: Transport **Core indicator**

Brief definition: The indicator measures the share of each mode (passenger cars, buses and coaches, and trains) in total inland passenger transport, measured in passenger-km.

Description: The indicator provides information on the relative importance of different modes for passenger transport. The use of cars for passenger transportation is generally less energy efficient and has greater environmental and social impacts, such as pollution, global warming as well as a higher accident rate, than mass transit.

MODAL SPLIT OF FREIGHT TRANSPORT

Sub-theme: Transport

Brief definition: The indicator measures the share of each mode (road, rail and inland waterways) in total inland freight transport, measured in tonne-km.

Description: The indicator provides information on the relative importance of different modes for freight transport. Road transport is less energy-efficient and produces more emissions per tonne-kilometer than either rail or inland waterways transport. Therefore, the use of road for freight transport has greater environmental and social impacts, such as pollution, global warming, as well as a higher accident rate, than either rail or inland waterways transport.

ENERGY INTENSITY OF TRANSPORT

Sub-theme: Transport

Brief definition: The indicator is defined as fuel used per unit of freight-kilometer (km) hauled and per unit of passenger-km traveled by mode.

Description: The indicator measures how much energy is used for moving both goods and people. Transport serves economic and social development through the distribution of goods and services and through personal mobility. At the same time, transport is a major user of energy, mostly in the form of oil products, which makes transport the most important driver behind growth in global oil demand. Energy use for transport therefore contributes to the depletion of natural resources, to air pollution and to climate change. Reducing energy intensity in transport can reduce the environmental impacts of this sector while maintaining its economic and social benefits.